

## **DATA DETECTION AND DEMODULATION FOR WIRELESS COMMUNICATION SYSTEMS**

### **ABSTRACT**

Techniques for detecting and demodulating data transmissions in wireless communication systems. In one aspect, a decision-directed detector detects for data transmissions in a received signal by utilizing received data symbols as well as received pilot symbols. The decision-directed detector may be designed to perform differential detection in the frequency domain or coherent detection in the time domain, and may be used with multi-carrier modulation (e.g., OFDM). In another aspect, an adaptive threshold is used to perform detection of received data transmissions. A threshold may be determined for each data transmission hypothesized to have been received. The threshold may be computed, for example, based on the signal plus noise energy of the hypothesized data transmission.